

## **SOUTH DAKOTA STATEWIDE FISHERIES SURVEY**

**2102-F-21-R-48**

**Name:** Geddes Lake **County(ies):** Charles Mix  
**Legal Description:** T97N-R63W-Sec. 35 **GPS:** 43°11'37.16"N 98°42'47.20"W  
**Location from nearest town:** 4.5 miles south of Geddes

**Date of present survey:** June 15-17, 2015 (netting)  
**Date of last survey:** October 1, 2012 (electrofishing)  
**Most recent lake management plan:** F-21-R-41 (January 1, 2009 to December 31, 2013)  
**Management classification:** Warmwater Semi-permanent

<b>Primary Game Species</b>	<b>Secondary and Other Species</b>
Black Crappie	Black Bullhead
Bluegill	Common Carp
Largemouth Bass	Green Sunfish
Cannel Catfish	Orange-spotted Sunfish
Yellow Perch	

### **PHYSICAL DATA**

**Surface Area:** 64 acres **Watershed:** 68,000 acres  
**Maximum Depth:** 9 feet **Mean Depth:** 6 feet  
**Lake elevation at time of survey (field observations):** Full  
**Contour map:** Yes **Date:** 1972

#### **Ownership of lake and adjacent lakeshore properties:**

Geddes Lake is a 64 acre impoundment located 4.5 miles south of the town of Geddes in central Charles Mix County. The artificial impoundment was created in 1939 by the Works Progress Administration (WPA) with construction of an earthen dam on Pease Creek. To allow for the creation of the dam and lake, two public use easements were granted to the State of South Dakota for the lake and a twelve-foot strip of land above the high water contour. The immediate shoreline surrounding Geddes Lake is privately owned.

#### **Watershed condition with percentages of land use types:**

Geddes Lake is located on the upper end of the Pease Creek watershed, a tributary of the Missouri River. The watershed above Geddes Lake covers approximately 68,000 acres or 106 square miles. The immediate shoreline of Geddes Lake consists mainly of native grasses and wooded areas. The remainder of the watershed is made up of approximately 60% cultivated cropland and 40% pasture and hayland.

**Fishing access:**

Fishing opportunity is usually severely limited during the summer due to the heavy amounts of emergent vegetation found around the shoreline. There is a marginal boat ramp for water access by small duck type boats.

**Condition of all structures (i.e. spillway, boat ramps, level regulators, etc.):**

The access trail is a good trail that travels through a wooded area on the east side of Geddes Lake. The boat ramp is in fair to poor condition, but is usually narrowed by heavy emergent vegetation.

**Field observations of aquatic vegetation condition:**

Emergent vegetation, mainly cattail and bulrush, is found around the perimeter of the entire lake. Submergent vegetation is common and found to a depth of 5 feet

**CHEMICAL DATA****Field observations of water quality and pollution problems:**

Moderate to heavy siltation has occurred in the entire lake resulting in a significant loss of the lakes total holding capacity. Siltation from the watershed has also created high nutrient levels. No other pollution problems were evident at the time of the survey. Water clarity was excellent with a secchi disc reading of 6.5 foot. Other water quality characteristics were measured in the field on June 15, 2015, using a HACH water quality kit and a Hanna multiparameter meter. Results are found in Table 1.

**Presence of a thermocline and depth from surface:** No

**Station for water chemistry located on attached map:** Yes

**Table 1.** Water chemistry results from Geddes Lake, Charles Mix County, June 15, 2015.

Station	Depth (ft)	Temp (F)	DO (ppm)	CO2 (ppm)	ALK (mg/L)	HRD (mg/L)	pH	Cond. (μS/cm)	TDS (ppm)	Sal.	ORP	Secchi (ft)
A	Surface	78.5	3.18	11.5	287	1393	8.13	2640	1314	1.36	-188.1	6.5
A	6.5	77.5	2.57	90.8	247	1219	8.02	2226	1321	1.36	-190.6	

**BIOLOGICAL DATA****Methods:**

Geddes Lake was sampled on June 15-17, 2015, with ten overnight trap net sets. The trap nets have 3ft x 5ft frames, 60ft leads, and ¾ inch knotted mesh. No experimental gill nets or electrofishing was done during this sampling season. Fish indices and statistics were completed using Winfin.

## Results and Discussion:

### Trap Net Catch

**Table 2.** Total catch of ten, overnight  $\frac{3}{4}$ -inch frame nets at Geddes Lake, Charles Mix County, June 15-17, 2015.

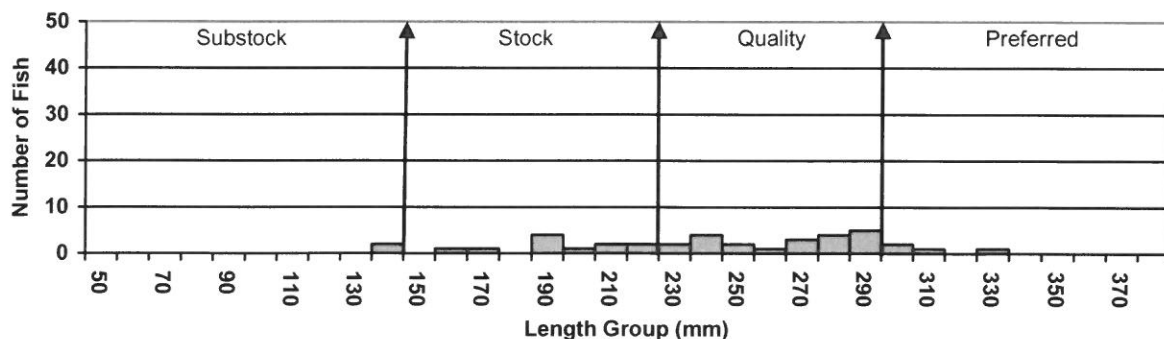
Species	#	%	CPUE	80% C.I.	Mean CPUE*	PSD	RSD-P	Mean Wr
Green Sunfish	1,780	97.7	178.0	$\pm 86.7$	1.7	6	0	121
Black Bullhead	38	2.1	3.8	$\pm 1.2$	186.9	69	11	88
Common Carp	4	0.2	0.4	$\pm 0.4$	25.3	--	--	102

\* Eleven year mean since winterkill in 1977-78 (1979, 1983, 1987, 1990, 1992, 1995, 1998, 2001, 2004, 2007, 2010)

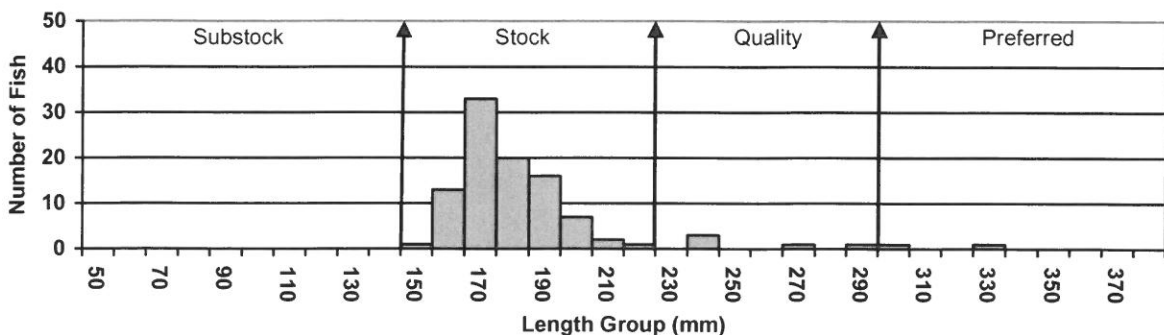
### Black Bullhead

Geddes Lake continues to contain a black bullhead population. The CPUE of 3.8 is below the 33.0 from the 2010 survey (Table 4) as well as the 186.9 eleven year mean (Table 2). Figures 1 through 5 illustrate the length frequency histograms for the last five surveys. The population is generally dominated by small fish and that size structure never really changes, although the size distribution is much more spread out this survey. Condition is fine with a mean Wr of 88.

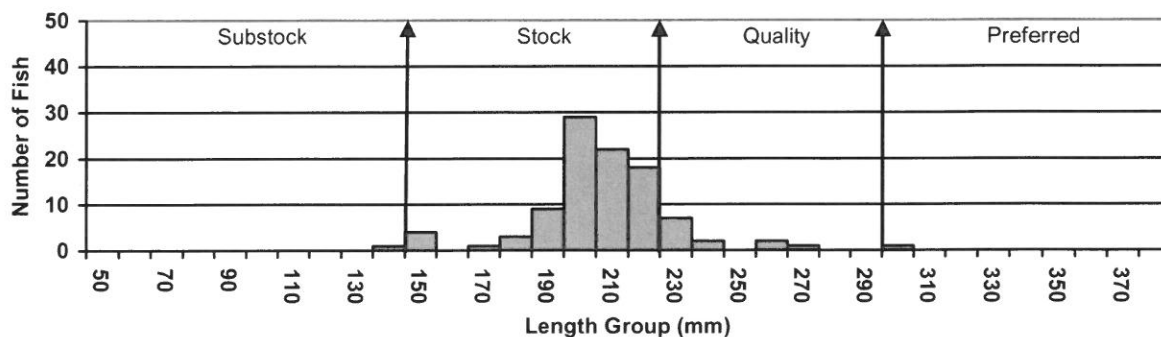
**Figure 1.** Length frequency histogram for black bullhead sampled from Geddes Lake, Charles Mix County, 2015.



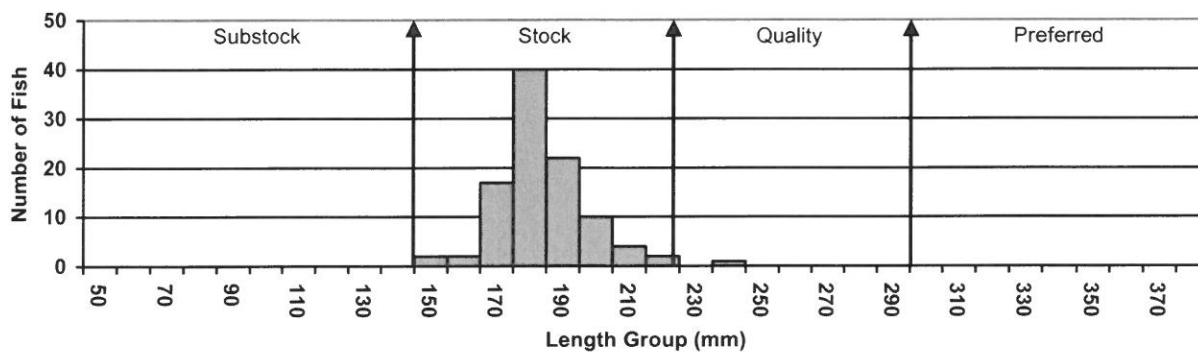
**Figure 2.** Length frequency histogram for black bullhead sampled from Geddes Lake, Charles Mix County, 2010.



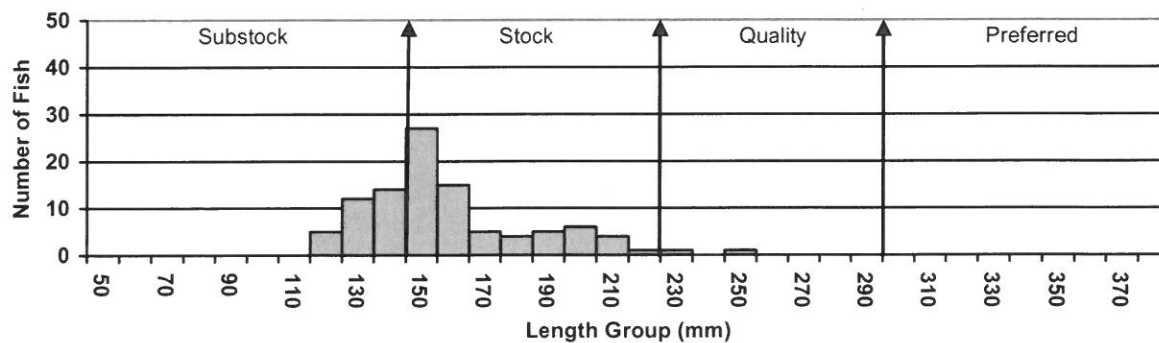
**Figure 3.** Length frequency histogram for black bullhead sampled from Geddes Lake, Charles Mix County, 2007.



**Figure 4.** Length frequency histogram for black bullhead sampled from Geddes Lake, Charles Mix County, 2004.



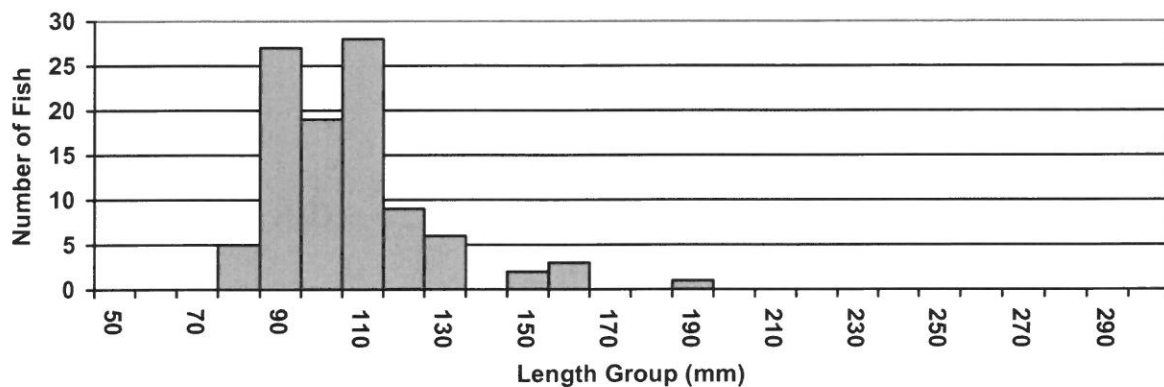
**Figure 5.** Length frequency histogram for black bullhead sampled from Geddes Lake, Charles Mix County, 2001.



## **Other Species**

Green sunfish were the dominant species sampled this survey. The CPUE of 178.0 is well above the 0 from the 2010 survey (Table 4) as well as the 1.7 eleven year mean (Table 2). Figure 6 illustrates the length frequency histogram for the fish sampled this survey. Condition is good with a mean  $W_r$  of 121. This population is not really of much benefit to anglers other than they would be a species that could keep a youth active for a fishing trip.

**Figure 6.** Length frequency histogram for green sunfish sampled from Geddes Lake, Charles Mix County, 2015.



Common carp were the only other species sampled this survey and their numbers were way below past survey catches. Black crappie, yellow perch, largemouth bass, northern pike, channel catfish, bluegill, orangespotted sunfish, pumpkinseed sunfish, and hybrid sunfish were the species not sampled that have been in surveys past (Table 4).

**Table 3.** Stocking records for the last ten years for Geddes Lake, Charles Mix County.

Year	Number	Species	Size
1999	6,400	Largemouth Bass	Fingerling
2001	6,400	Largemouth Bass	Fingerling
2008	100	Largemouth Bass	Juvenile
2009	100	Largemouth Bass	Juvenile
2009	1,050	Largemouth Bass	Juvenile

## **RECOMMENDATIONS**

1. Resurvey in 2018 to continue monitoring the fish populations in Geddes Lake.
2. Stock juvenile and/or adult black crappie to try to establish a population.

**Table 4.** Gill net (GN), trap net (TN) and electrofishing (EF) CPUE for all fish species sampled in Geddes Lake since surveys started.

Species	1976	1977	1979	1983	1987	1990	1992	1995	1998	2001	2004	2007	2010	2012	2015
BLB (GN)	26.0	12.0	--	--	--	--	--	--	--	--	--	--	--	--	--
BLB (TN)	11.3	5.1	39.4	59.6	797.1	44.6	55.0	78.0	211.3	448.3	266.5	22.9	33.0	--	3.8
BLC (GN)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
BLC (TN)	--	--	--	--	--	0.1	0.5	24.4	26.9	9.0	3.2	0.1	5.4	--	--
YEP (GN)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
YEP (TN)	--	--	--	--	--	0.4	0.2	0.4	0.1	--	--	--	--	--	--
LMB (EF)	--	--	--	--	11.3	--	--	--	--	--	--	--	--	0.0	--
LMB (GN)	4.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
LMB (TN)	1.3	--	0.3	--	2.3	0.1	0.4	0.6	--	0.1	0.3	--	--	--	--
CCF (GN)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CCF (TN)	--	--	--	--	--	--	--	0.4	--	0.3	0.1	--	--	--	--
COC (GN)	--	112.0	--	--	--	--	--	--	--	--	--	--	--	--	--
COC (TN)	--	27.7	11.4	41.4	0.6	1.1	0.8	6.6	0.4	14.9	27.9	167.3	6.2	--	0.4
BLG (GN)	2.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
BLG (TN)	17.8	14.1	--	1.4	54.8	1.3	1.1	2.8	0.1	0.1	0.2	--	--	--	--
GSF (GN)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GSF (TN)	--	--	1.4	3.6	6.8	2.0	--	3.2	1.7	--	0.2	--	--	--	178.0
OSF (GN)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
OSF (TN)	--	--	--	4.4	0.3	0.8	0.7	1.6	0.4	--	--	4.4	--	--	--
PUS (GN)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PUS (TN)	--	--	--	--	--	--	--	--	--	0.9	--	--	--	--	--
HYB (GN)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
HYB (TN)	--	--	--	--	--	--	--	--	--	--	0.1	--	70.2	--	--

BLB – Black Bullhead, BLC – Black Crappie, YEP – Yellow Perch, LMB – Largemouth Bass, CCF – Channel Catfish, COC – Common Carp, BLG – Bluegill, GSF – Green Sunfish, OSF – Orangespotted Sunfish, PUS – Pumpkinseed sunfish, HYB – Hybrid Sunfish